

Dawn of a New Anti-Tachyarrhythmia Remedy; Catheter Ablation

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This presentation is about an old story that happened about forty years ago. Our work entitled “ Transvenous Electrocautery of the Atrioventricular Connection Guided by the His Electrogram “ was published in the Japanese Circulation Journal in 1978 and was to report the very first trial of catheter ablation using mongrel dogs. In those days, some groups had been trying A-V block formation to treat supraventricular tachycardia by performing a closed method to exposed heart or open heart surgery. However, most of the people at that time were not aware of an approach to use catheter electrode as a less invasive treatment for tachycardia and nobody had performed it. Our group hypothesized catheter ablation as an innovative way to treat patients and initiated a project to assess its usefulness. For that purpose, a solid state electrocautery unit MS 7000 (Senko-Ika Co.Ltd.) was employed to achieve our project. In order to avoid the dislocation of electrode tips at the moment of current firing, we invented “doubled electrode” that consisted two electrodes. One cauterizing electrode runs through the sheath and comes out of its side hole. Another monitoring electrode tip surrounds the side hole of the sheath. On the timing of maximum deflection of His potential detected by the monitoring electrode, the tip of cauterizing electrode is pushed out of the sheath into the vicinity of His bundle. Then, R-synchronized cauterizing current of 0.2 second in duration is immediately carried out. The procedure for cauterizing is repeated three or four times and eventually succeeds in forming A-V block to complete the His bundle ablation. Gross examination of the right atrial and ventricular cavities of the heart demonstrated the presence of cauterized lesions. This study convinced us its feasibility for clinical use. In 1982, four years after our original work, Gallagher as well as Scheinman successfully performed the catheter ablation on human patients by DC shock.